

## AMENDMENT

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims:

1-21. (Cancelled)

22. (Currently Amended) A computer-implemented method for ~~[[the]]~~ a synthesis of photo-realistic animation of an object, the method comprising:

creating a first database of image samples showing ~~[[an]]~~ the object in a plurality of appearances;

creating a second database of the visual features for each image sample of the object;  
~~[[and]]~~

creating a third database of the non-visual features of the object in each image sample;  
obtaining, for each frame in a plurality of N frames of an object animation, a target feature vector comprising visual features and non-visual features associated with the object animation;

selecting via a processor candidate image samples from the first database utilizing the target feature vector to generate ~~[[a]]~~ the photo-realistic animation of the object;

calculating, for each pair of candidates of two consecutive frames, a concatenation cost from a combination of visual features from the second database and object characteristics from the third database; and

performing a Viterbi search to find ~~[[the]]~~ a least expensive path through the candidates accumulating a target cost and concatenation costs, wherein generating the photo-realistic

animation of the object occurs using an audio/video unit selection process in which a longest possible candidate image sample is selected.

23. (Currently Amended) A computer-implemented method for the synthesis of photo-realistic animation of an object, the method utilizing a first database of image samples showing an object in a plurality of appearances, a second database of visual features for each image sample of the object, and a third database of non-visual features of the object in each image sample, the method comprising:

~~creating a first database of image samples showing an object in a plurality of appearances;~~

~~creating a second database of the visual features for each image sample of the object; and~~

~~creating a third database of the non-visual features of the object in each image sample;~~

obtaining, for each frame in a plurality of N frames of an object animation, a target feature vector comprising visual features and non-visual features associated with the object animation;

selecting via a processor candidate image samples from the first database utilizing the target feature vector to generate a photo-realistic animation of the object; calculating, for each pair of candidates of two consecutive frames, a concatenation cost from a combination of visual features from the second database and object characteristics from the third database; and

performing a Viterbi search to find the least expensive path through the candidates accumulating a target cost and concatenation costs, wherein generating the photo-realistic animation of the object occurs using an audio/video unit selection process in which a longest possible candidate image sample is selected.

24. (Previously Presented) The method of claim 22, wherein selecting candidate image samples further comprises for each frame in the plurality of N frames of the animation, selecting candidate image samples associated with the object animation using a comparison of a combination of visual features and non-visual features with the target feature vector.

25. (Previously Presented) The method of claim 24, further comprising compiling the selected image sample candidates to form a photo-realistic animation.

26-28. (Cancelled)

29. (Previously Presented) The method of claim 22, wherein the animation is a talking-head animation, the first database stores sample images of a face that speaks, the second database stores associated facial visual features and the third database stores acoustic information for each frame in the form of phonemes.

30. (Currently Amended) A computer-implemented animation of an object generated according to a process of:

creating a first database of image samples showing an object in a plurality of appearances;

creating a second database of the visual features for each image sample of the object;

[[and]]

creating a third database of the non-visual features of the object in each image sample;

obtaining, for each frame in a plurality of N frames of an object animation, a target feature vector comprising visual features and non-visual features associated with the object

animation;

selecting via a processor candidate image samples from the first database utilizing the target feature vector to generate a photo-realistic animation of the object; calculating, for each pair of candidates of two consecutive frames, a concatenation cost from a combination of visual features from the second database and object characteristics from the third database; and

performing a Viterbi search to find the least expensive path through the candidates accumulating a target cost and concatenation costs, wherein generating the photo-realistic animation of the object occurs using an audio/video unit selection process in which a longest possible candidate image sample is selected.

31. (Previously Presented) The animation of claim 30, wherein the step of selecting candidate image samples further comprises for each frame in the plurality of N frames of the animation, selecting candidate image samples associated with the object animation using a comparison of a combination of visual features and non-visual features with the target feature vector.

32. (Previously Presented) The animation of claim 31, wherein the animation is generated according to the additional step of compiling the selected image sample candidates to form a photo-realistic animation.

33-35. (Cancelled)

36. (New) A system for synthesizing a photo-realistic animation of an object, the system comprising:

a processor;

a first module controlling the processor to create a first database of image samples showing the object in a plurality of appearances;

a second module controlling the processor to create a second database of the visual features for each image sample of the object;

a third module controlling the processor to create a third database of the non-visual features of the object in each image sample;

a fourth module controlling the processor to obtain, for each frame in a plurality of N frames of an object animation, a target feature vector comprising visual features and non-visual features associated with the object animation;

a fifth module controlling the processor to select via a processor candidate image samples from the first database utilizing the target feature vector to generate the photo-realistic animation of the object;

a sixth module controlling the processor to calculate, for each pair of candidates of two consecutive frames, a concatenation cost from a combination of visual features from the second database and object characteristics from the third database; and

a seventh module controlling the processor to perform a Viterbi search to find a least expensive path through the candidates accumulating a target cost and concatenation costs, wherein generating the photo-realistic animation of the object occurs using an audio/video unit selection process in which a longest possible candidate image sample is selected.

37. (New) A non-transitory computer-readable storage medium storing instructions which, when executed by a computing device, cause the computing device to synthesize photo-realistic animation of an object, the instructions utilizing a first database of image samples showing an object in a plurality of appearances, a second database of visual features for each image sample

of the object, and a third database of non-visual features of the object in each image sample, the instructions comprising:

obtaining, for each frame in a plurality of N frames of an object animation, a target feature vector comprising visual features and non-visual features associated with the object animation;

selecting via a processor candidate image samples from the first database utilizing the target feature vector to generate a photo-realistic animation of the object; calculating, for each pair of candidates of two consecutive frames, a concatenation cost from a combination of visual features from the second database and object characteristics from the third database; and

performing a Viterbi search to find the least expensive path through the candidates accumulating a target cost and concatenation costs, wherein generating the photo-realistic animation of the object occurs using an audio/video unit selection process in which a longest possible candidate image sample is selected.

38. (New) The non-transitory computer-readable storage medium of claim 37, wherein selecting candidate image samples further comprises for each frame in the plurality of N frames of the animation, selecting candidate image samples associated with the object animation using a comparison of a combination of visual features and non-visual features with the target feature vector.

39. (New) The non-transitory computer-readable storage medium of claim 38, further comprising compiling the selected image sample candidates to form a photo-realistic animation.

40. (New) The non-transitory computer-readable storage medium of claim 37, wherein the animation is a talking-head animation, the first database stores sample images of a face that speaks, the second database stores associated facial visual features and the third database stores acoustic information for each frame in the form of phonemes.

41. (New) A system for animating an object, the system utilizing a first database of image samples showing an object in a plurality of appearances, a second database of visual features for each image sample of the object, and a third database of non-visual features of the object in each image sample, system comprising:

a processor; and

a first module controlling the processor to animate an object generated according to steps comprising:

obtaining, for each frame in a plurality of N frames of an object animation, a target feature vector comprising visual features and non-visual features associated with the object animation;

selecting via the processor candidate image samples from the first database utilizing the target feature vector to generate a photo-realistic animation of the object;

calculating, for each pair of candidates of two consecutive frames, a concatenation cost from a combination of visual features from the second database and object characteristics from the third database; and

performing a Viterbi search to find the least expensive path through the candidates accumulating a target cost and concatenation costs, wherein generating the photo-realistic animation of the object occurs using an audio/video unit selection process in which a longest possible candidate image sample is selected.

42. (New) The system of claim 41, wherein selecting candidate image samples further comprises for each frame in the plurality of N frames of the animation, selecting candidate image samples associated with the object animation using a comparison of a combination of visual features and non-visual features with the target feature vector.

43. (New) The system of claim 42, wherein the animation is generated according to the additional step of compiling the selected image sample candidates to form a photo-realistic animation.